2005 INCS Workshop 1
(DRAFT Minutes)

Next Generation Airport Surface Communications

Co-Chairs: Rafael Apaza – FAA, David Matolak – Ohio University, Todd Donovan – Sensis Corporation

Attendees: Barbara Harrelson, Sethu Rathinam, Kevin Harnett, George Hunter, Chris Dhas, Waseem Naqvi, Mike Zernic, Noel Schmidt, Yang Wang, Jimmy Krozel, Bob Kerczewski, Dana Hall, Mike Harrison, Steve DeHart

Workshop Started at 3:20pm, on Wednesday May 4, 2005, with the attached presentation by Rafael Apaza

The questions were offered for consideration:

- What R&D and technologies being developed may be most appropriate for airport surface wireless networks?
- What will be the most important future concepts of use of the airport surface network?
- What are the most significant initial deployment issues?
- Any technology barriers?
- What are some feasible surface and terminal airspace communication system 'seamless transition' concepts?
- What are the major cost issues, and are there any such issues that appear insurmountable?

Discussion started on question 2. Below is the general comments from the group.

From Yang Wang – "The trend is strong for a commercial solution" and a general discussion followed that agreed that the commercial solution would be influenced by policy decisions

Next a discussion of security and authentication followed

Mixed mode operation small and large airports, many users that do not normally interact

From TD Optimal application would create various communities of users that have a collaborate community at the users

YW – agree create a application to provide a service to all the users

RA/DM – referred to future requirements study, is a flexible system that meets the growth requirements the questions is do you provide an applications platform

Next step is the concept of statement of use

If the 5 GHz band available will it be sufficient for future growth (scaleable)

YW – How to have an adaptable infrastructure

TD – What can be excluded (priorities) maybe voice comm. for ATC

SR – Aircraft already have a solution for surface operations

KHH – A major benefit is collecting user fees (presently the honor system)

RA – Complexity is on the ground in the air there are no tenant users

CW – Many more users on the ground + surveillance vast density difference

SR – The solution may be a suite of applications with a gateway

YW – ID users and prioritize

TD – Focusing concept

RA – Who benefits first

YW – Could pilot and passengers both use cell tower

SR – Who suffers the most from the present inefficiency, who is effected directly and indirectly –

DM – The concept will evolve over time

MH – Do you discuss application with operators versus regulations and $, example: butler aviation could reduce personnel cost by 20% if fuel trucks location. Business case based on information to tenants

FAA - May be passed by technology and become (just) another user of information

SR – What does the present system not deliver?

RA – VHF spectrum saturation, limitations of copper system, smaller airport not networked

DM – Lets not limit ourselves

TD – There will be a need to augment commercial with the parts that address commercial system does not address (security/availability)

MH – How do you get around the security of wireless networks and effects on flight critical signals (ILS etc)

RA – Can existing systems continue to be used (as backup)

MH – Initially use wireless as backup to present system and reverse/phase out

MH – Test case if you had ½ the people to turn 2x the aircraft what system would the solution

Major issues:

Ownership of system – FAA would prefer to own, but would probably actually lease. FAA may only own safety portion. Perhaps the spectrum allocation may partly define (public safety, commercial, flight critical) who owns/manages which part.

Future Concept of Use – Define (or at least bound) the overall architecture and the potential of using the 5GHz protected extended MLS band. Described by the group as the question looking for an answer and the answer looking for the question. Extended MLS band is "answer looking for question". Complete airport surface network concept of use is "question looking for answer".

What are the objectives from which we derive future requirements – Which applications could be removed from the requirements study effort to facilitate finding answers? For example is VHF voice a "given" and something that industry will not influence.

How does the ongoing FAA work influence this effort – for example how would the NGATS Plan to reduce lights and signage affect the future network?

What is the business case – What would facilitate users to participate?

Recommendations

Continue development of the Concept of Use, but don't iterate indefinitely. Set deadlines and use multiple reviews

Continue development of the Business Case, presently on hold due to funding

Continue engineering studies of the extended MLS band

Need to define to stakeholders what the term "airport network" means – A proposed airport wireless network is a subset of the much bigger "airport network"

Need to define the inherently government functions that a new airport network needs to perform (safety, security, runway operations)

The defined architecture will need to be scalable and flexible.

The defined architecture should work to build on commercial architectures that are in development. It should also focus on defining how the inherently government functions could be accommodated by these commercial systems, or by suitably modified versions of these systems, to meet unique requirements, e.g., security.

Explore how the system may fund itself for example:

- The collection of landing fees
- Improvements of aircraft fueling operations
- Reductions in maintenance of lighting and signs (ground facilities)
- The ability of the system to provide (sell) services

Define who may be the first group(s) to benefit, then use needs of these groups to help determine objectives and concept of use.

Review presentation by Yang Wang – Some of the main points are the benefits of developing a "community of users" with the goal of interoperability between the different physical communication technologies. Need to consider if the proposed concepts should influence the concept of use study.

The workshop ended at 5:07

Submitted by Ron Sicker